

EVALUATING THE IMPACT OF RAIL-TRAIL CONVERSION PROJECTS ON
PROPERTY VALUES:
EMPIRICAL EVIDENCE FROM THE ILLINOIS PRAIRIE PATH

BY

ANA MARIA CARVAJAL N.

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Ana Maria Carvajal N.

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BE ACCEPTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR

THE DEGREE OF Master of Urban Planning

Markki Geop

Director of Thesis Research

Cyril Silver

Head of Department

Committee on Final Examination†

Markki Geop

Chairperson

[Signature]

† Required for doctor's degree but not for master's.

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ABSTRACT

Local governments and urban planners are increasingly interested in converting abandoned railroad lines to recreational uses. Despite the benefits that can be derived from such rail-trail conversion projects, they often face strong political opposition. This opposition is primarily from owners of residential properties along the railroad right-of-way who fear that the value of their properties will decline after the conversion. This study uses empirical data (as opposed to opinion surveys) from the Illinois Prairie Path to test if these fears are justified. Assessed land values of properties 'close to' and 'away from' the trail are compared. The same is done for rental prices. In the first case, no significant difference is found for an average property, but different impacts result from analyzing particular assessed land value levels. In the second case residential rents are found to be higher in properties close to the trail in average, as well as for particular rent levels.

To my babies' dreams, which allow me to dream on how
to develop something to make their life the happiest
possible.

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Of course, all remaining errors and omissions remain my responsibility.

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1. INTRODUCTION

Many railroad lines are being abandoned in the United States as a result of changes in the transportation industry. As interstate highways have become more important, and populations have shifted to the suburbs, railroads no longer play the leading role that characterized them at the beginning of this century (Barnett, 1995; Teaford, 1990). The diminishing volume of passenger and freight traffic on certain railroad lines has rendered them redundant, and caused companies to abandon many lines and the rights-of-way associated with them.

While an abandoned Right-of-way is sometimes sold or reverted back to owners of property adjacent to it,¹ local governments and urban planners are increasingly interested in converting abandoned railroad lines to recreational uses. There are many discussions of benefits associated with converting abandoned lines to trails (Barnett, 1995; Ames, 1981; Blair & Tindall, 1977). Rail-trail conversion projects are seen as exciting and meaningful additions to a community's recreational life. These projects also serve as ecologically sustainable connectors of the urban infrastructure (Blair et. al, 1977), and can be integrated into local transportation by providing links between neighborhoods (Furuseth & Altman, 1991).

Rail-trail conversion projects being multi-purpose public paths, support a variety of recreational activities. These include bicycling, hiking, jogging, walking, horseback riding, in-line skating, cross-country skiing or snowmobiling, as well as observation of photography of flora and fauna and other natural and historical activities related with the resources found along the trail. Because of such benefits, more than 7,000 trail projects across the United States, are currently being used by communities for recreational purposes.²

¹ Rights-of-Way are to be understood as the land that includes the railroad grade, the portion where the rails and ties are located, as well as the land on both sides of the grade.

² Wark and Visgalties (1998) present a count of 7,115 trails corresponding to the sum of those bike paths on the ten states that have the highest number of trails.

There are several successful Rail-Trail conversion projects in Illinois. For example, The Illinois Prairie Path is a heavily used multi-use 55-mile trail that occupies the former right-of-way of the defunct Chicago, Aurora and Elgin Railway. The conversion project began in 1963, two years after the commercial use of the railroad line was discontinued (Cross, 1997, 1998b). A non-profit organization took charge of administering the path in 1965. One year later the organization started to sign lease agreements to acquire the right to use the railroad right-of-way for the trails' path. In June 1971 the Illinois Prairie Path achieved national status and was the first in the state of Illinois to do so. Today the trail is considered one of Illinois' most interesting interurban recreational resources.³

Despite the recreational and educational benefits that can be derived from such rail-trail conversion projects, they often face strong political opposition. This opposition is primarily from owners of residential properties along the railroad right-of way. These owners fear that the value of their properties will decline when the right-of-way gets converted to recreational uses. They also fear that the use of this area by the general public could lead to increase in crime because of the influx of strangers into their community. At least two Rail-Trail conversion projects have been successfully blocked in Illinois; one in Rock Island, the other in Urbana.

The Rock Island trail controversy has been well documented.⁴ The attempts for conversion of this trail (today, the first state owned Rail-Trail project) started in the early 1970's. However, despite widespread and enthusiastic support, opposition from a minority of landowners blocked parts of the project at various stages (Ames, 1981). During 17 years of community opposition the project faced claims related to the fears mentioned above. Landowners believed that property values would decrease along with a rise in vandalism along the trail ("New Rock", 1979). Even though acts of vandalism were perpetrated, in reality these were the result of the same landowners opposing the

³ The trail has received numerous recognitions. Among others, in 1988 the Illinois Path Corporation won the national *Take Pride in America* award.

⁴ A list of more than 25 references on the Rock Island's controversy (including newspaper articles) can be found in Ames (1981).

project ("Vandalism", 1981). In fact, such type of criminal behaviors was a major issue here.⁵ The arguments in the case of the Urbana trail were very similar. As above, the main argument was that the conversion project would lead to an increase in vandalism and with it property prices would drop (De Blasio, 1984; Ryan, 1984; and Monson, 1993). One of the main concerns in this discussion was that the reduction of property values would not only reduce the wealth of owners, but also would have an impact on the local government's finances (De Blasio, 1984).

As a result of this opposition the railroad lines were not converted during the first 17 years in the Rock Island trail project and the Urbana trail was never even begun. Only 27 miles of the Rock Island trail have been converted, but only after the death of the leader of the opposition group and some political maneuvering, a tree way agreement provided the opportunity to overlook the trail. The project was completed in 1989 and dedicated May 12 1990.

Regarding the community sentiment towards these two major conversion issues, most evaluations of Rail-Trail projects are based on the opinion of property owners and trail users.⁶ Moore & Graefe (1993), for example, report the opinions of 349 property owners along converted trails in Florida, Iowa and California. They study the issues of property owners often fearing a decrease in property values and an increase in crime (the problems mentioned above), and their negative attitudes towards their trail. Their findings show that a different change occurs and this is landowners' attitudes towards their trail. Similarly, Vogelsong and Bhullar (1993), using a similar survey method to analyze the Columbia's MKT Nature/Fitness trail, report as in the previous mentioned study, that these fears are overcome in time and that neighbors are satisfied with the trail.⁷

⁵ For example, the day the trail was opened, a child (son of one of the farmers opposing the trail) set the Spoon Bridge on fire (He was never prosecuted for this). Another frequent act of vandalism by the community is signage removal.

⁶ Interestingly enough, there are no evaluations (at least to my knowledge) based on objective empirical evidence. (Not based on Surveys).

⁷ Unfortunately the possibility of comparing experiences across rail-trail conversion projects based upon survey research, is a not a viable task, given the difference in nature of the structure of surveys and the heterogeneity of the populations surveyed in each area. Surveys, even if valuable in many contexts, in some

This paper uses empirical data to test the validity of claims that Rail-Trail conversion projects reduce residential property values. Empirical evidence from the Illinois Prairie Path is provided. First I compare assessed land values 'close to' and 'away from' the trail. Then, I compare residential rents 'close to' and 'away from' the trail.

The rest of the paper is organized as follows. Chapter 2 reviews the literature on Rail-Trail conversion projects. Literature on implementation as well as on evaluation is reviewed. The objectives of my research are outlined at the end of this chapter. Chapter 3 discusses the analytical methods used to evaluate the impact of conversion projects on residential property values, and presents an overview of the Illinois Prairie Path. Chapter 4 reports the results of my analysis. Chapter 5 concludes with a discussion of the implications of my findings.

cases may not truly represent the reality of the overall surrounding environment, and instead can reflect subjective opinions that might have developed in each community for any unknown reason.

2. BACKGROUND

Today, abandoned railroad corridors are being restored for public and educational use. Although benefits from these conversion projects have been identified at different levels, public opinion is that these projects reduce the value of adjacent residential properties. Even though other studies have addressed this issue employing opinion surveys, the question remains: Can this effect be tested with objective empirical evidence?

In this section, I review a variety of issues concerning Rail-Trail conversion projects that are identified in the literature. These include legal, technical, economic, environmental, political, and social issues. I also review the literature on the evaluation of conversion projects.

2.1 Reusing Abandoned Rail Lines

The adaptive reuse of rail corridors enhances surrounding areas, increasing development potentials and creating more ecologically sustainable communities along their paths (Blair et. al, 1977). They can also be integrated into local transportation systems, providing links between neighborhoods (<http://www.railtrails.org/whtrl.html>; Furuseth et. al 1991).⁸ Railroad lines are being increasingly valued by planners due to the opportunity that they offer to develop multiple activities related not only with recreation and culture (Ames, 1981; Barnett 1995).

Rail-Trail projects have been defined by many different sources as trails or multipurpose corridors built on or next to abandoned railroad tracks (Blair et. al 1977; Ames 1981; <http://www.railtrails.org/whtrl.html>). The fact that certain activities require the removal of the rails and ties has generated controversy because that would ruin the infrastructure forever (Chu, 1996). However, recently, activities such as rail hiking have been developed and the possibility of ‘banking’ currently unused rails for future use has

⁸ Note: This and all other web sources were electronically printed into a .pdf format at this project’s time of data research. They could be available for any data inquiries (if necessary), considering future web page’s updates after this project’s submission.

increased even more the popularity of Rail-Trails across the United States (<http://www.railtrails.org/vansh.html>).⁹

2.2 Implementation Issues in Rail-Trail Conversion Projects

2.2.1. Legal Issues

Restoration of rail lines for recreational and commercial purposes can experience difficulties and permit denials due to changes in the area since the abandonment was granted (Welty 1993). Property owners, to whom land ownership reverted after abandonment, might refuse to sign lease agreements for others to use their portion of the former right-of-way.

The most significant legal issue has to do with lack of clarity about the ownership of the rights-of-way, and in some cases, even of the land where abandoned railroad lines run. There are many court cases where ownership and tax status, among other things, have been called into question by owners of properties and trail organizations. Some of these are brought up when condemnation, rail abandonment or change of use of the lines and their rights-of-way are a matter in question (Kahn, 1993). However, sets of court decisions are compiled to provide a legal framework for organizations (such as the Rail-to-Trails Conservancy) to deal with these situations.

While railroad lines must be abandoned before they can be used as trails, a railroad line cannot be acquired by encouraging abandonment. Abandonment is regulated by federal legislation, and requires legal procedures to be fulfilled (Blair et. al 1977). In some cases, condemnation of the lines becomes necessary, because taking over these abandoned rail areas is arduous and costly (Kahn 1993). Condemnation is not the only option to railroad line acquisitions. Some examples of successful newly converted recreational linear corridors are the result of successful negotiations between the involved parts (<http://www.infinitypress.com/fredwert/usalist.html>).

⁹ Ibid.

2.2.2. Technical Issues / Design Issues

It is important to consider that because of the suitability of the tracks to be converted into trails, physical re-development of the rail bed does not encounter great difficulties (Ames 1981). The design of some areas on a trail, as well as the economic issues involved, are important factors.

Usually, the greatest technical challenges are the preservation and maintenance of common or historical bridges on a path. A balance between safety needs and type of use is required, as well as ensuring continuity of a path. Some bridges pose a challenge because their condition might restrict use to certain trail users, unless the appropriate security measures have been designed ("Three-way", 1994). Another technical challenge is converting tunnels, but there is little published on this topic. Even though one of the sources ("Looking at", 1994) mentions six shuttered tunnels being considered under a routing alternative of a line's proposal for reuse, technical issues were not discussed.¹⁰

There is a history of cases of railroad stations that have been converted to alternative uses such as museums, restaurants and rest areas in very different settings (Anderson Notter Finegold, 1978; Kidney 1976). These old stations can support these and other trail-related uses such as a visitor's center, management offices of trail's organizations, and rest areas, if adaptation is possible. Trails in Illinois such as Heartland Pathways and Rock Island provide successful examples of restored constructions.

2.2.3. Economic Issues

Discussion of economic issues centers on three topics: funding, positive impacts, and negative impacts. In general, the negative impacts are more widely believed than the positive ones.

Funding for the conversion of railways can be achieved through federal, state, or local government support, or through private sources. Through the Transportation Equity Act

¹⁰ Most likely, for this particular case the reason for this is that the reuse of the rail corridor was considered but without a change of use.

(TEA-21), and the Intermodal Surface Transportation Efficiency Act (ISTEA), the Federal Transportation Enhancements Program provides a small amount of money for state and local governments to improve conditions for bicycling paths (<http://www.railtrails.org/51497.html>).¹¹ By the same means, the recreational trails program (formerly known as Symms) or The National Recreational Trails Fund Act can provide, out of a designated bill, funding for different projects (<http://www.railtrails.org/policy6.html>).

Lack of funding to cover the acquisition costs is one of the potential problems to be encountered (Blair et. al 1977). Nevertheless, bonds can be issued for funding property acquisitions and project construction of trails, greenways and parks.

Maintenance and signage require constant financial resources. If removal of the rails and ties is considered, it can provide a salvage benefit that will help offset some of the startup costs (<http://www.imlab.uiuc.edu/~railtrl/page2.html>).¹²

Several positive economic impacts are identified. Considering rail tracks or rail corridors as accessible open space available for recreational uses provides additional benefits to adjacent areas. Rail-Trails often provide a significant stimulus to local economies in urban as well as rural areas (Shulman 1996; <http://www.railtrails.org/whtrt.html>). The variety of possible activities to be generated around the trail's area involve most social levels and provide job alternatives to people with diverse educational backgrounds (<http://www.imlab.uiuc.edu/~railtrl/descr.html>).¹³ These activities can make the recreational uses sustainable given the revenues that they might generate and which are often reflected in the welfare of local economies (Blair et. al 1977, <http://www.imlab.uiuc.edu/~railtrl/descr.html>). Light neighborhood business/commercial

¹¹ Refer to footnote 8 on this chapter (page 5).

¹² Ibid.

¹³ Job opportunities vary from mobile ice cream stands to professional activities related with renovation and rehabilitation of dilapidated buildings along the trail.

activities, being dependent on accessibility and market competition, cannot be expected to be a great success at the outset.¹⁴

Rail-Trail projects are believed to have negative impacts. Fear of diminishing property values leads to delays in their implementation. This is probably because of misconceptions and myths about improper uses of public pathways: Increasing personal and property crime, allowing the abuse of back yards, and bringing to the area undesirable uses such as distribution and consumption of drugs among others.

This fear of improper use is likely unjustified. Jacobs (1961) states for example, that security increases when abandoned areas become active community spaces.¹⁵ Trails as well as greenbelts and linear parks can be considered urban amenities affecting property values positively in return for improved air and life quality (Knaap, 1998). Quality-of-life factors have positive effects on land and housing values (Bloomquist et al, 1988).

2.2.4. Environmental Issues

Environmental issues are the least problematic, and are the least discussed issue. When it comes to environmental issues, most conversion projects do not have negative impacts. Any impact would have been addressed when the rail corridor was constructed. Prairie preservationists often see these projects as a way to connect people to the environment, its rare species, nearby wetlands, and weeds located along a project's area, as well as an opportunity to stand for their preservation. (<http://www.prairienet.org:80/rec/prairie/heartlnd.htm>)¹⁶. The use of trails as transportation corridors to commute to daily activities (school, work, etc.) can help local jurisdictions meet clean-air mandates due to a reduction in traffic, hence in air pollution.

¹⁴ Here as in any other case, the success of a business depends on many other variables, which are not to be mentioned in this study.

¹⁵ Due to the "more eyes on the street" effect.

¹⁶ The enhancement of visual qualities along a trail is considered an economically scenic enjoyable resource, which can be evaluated. The assessment of nature on perceived values of residential properties, as the impact of environmental satisfaction have been evaluated in previous research (Orland,1992; Kaplan,1989).

2.2.5. Political Issues

Some of the issues that arise after dealing with public and political opposition, as well as with ownership and funding problems, include conversion time constraints, physical development, and operation & maintenance of these pathways (Blair et. al 1977; Welty 1993). These, as well as the assessment of the suitability for the land use change require political intervention and the support of an organization working behind, to facilitate the process. Sometimes it is necessary to influence zoning and land-use policy objectives of the local government in order to achieve the conversion of a rail corridor.

Rail abandonments are subject to administrative practices (Monson 1993) and procedures vary from state to state (Ames 1981). Some political issues are influenced by federal legislation; for example, “The Railroad Revitalization and Regulatory Reform Act of 1976”. There are a number of agencies dealing with trail issues: The Bureau of Outdoor Recreation, State Departments of Conservation and Transportation, Metropolitan Planning Commissions, and The National Trail System (under the Department of Interior), to mention a few.

Policies and plans can have secondary effects, acting as catalysts for other actions working towards the enhancement or detriment of cities as a whole.¹⁷ For instance, safety and public order are to be addressed (Barnett 1995). There is also the need to get different trail users to coexist peacefully. (<http://www.Rail-Trails.org/51497.html>).

2.2.6. Social Issues

A trail becomes in time a symbol of pride for the community, whether or not it has been officially recognized as a local landmark, and even though it may have been subject to initial resistance. Issues such as the increase of labor opportunities at all social levels are often over weighted by the possible threats that an increased volume of unknown subjects through the area pose to the adjacent residents of the path.

¹⁷ Political interventions in land use management may influence along with policy objectives of the local government changes in property values, as discussed by Knaap (1988).

Since conversion projects do increase the number of people circulating through the area, residents argue the possibilities of an increase in violence and lack of security,¹⁸ and that destruction of historical and natural resources along the path might take place. These factors (increase in violence and lack of security) can reduce the value of their properties, and account for most of the opposition claims encountered for trail conversions. They have been the basis of legal cases for denying or delaying projects. The common belief on all these opposing issues is not based on empirical evidence, but on fear.

Often, the community directly related to the project's area (landowners of properties adjacent to the trail) expresses most of the opposition, while potential users tend to favor it (Monson 1993). Opposition because of expected property value changes are also based on: the possibility of problems related with noise pollution, littering, back yard abuse, nuisances, sexual assaults, burglary, etc. The Rock Island and Urbana controversies (as mentioned before), provide clear examples of community opposition.

2.3 Evaluation of Rail-Trail Conversion Projects

Most of the evaluations that analyze the effects of conversion projects on property values are based on surveys. In general results from these surveys suggest that once the trail has been developed, people gain a positive attitude toward the trail and perceive that their properties will increase in value rather than decrease. They feel very differently before the trail is implemented.

Moore, Graefe, Gitelson and Porter (1992) and Moore & Graefe (1993) use survey data to evaluate how the perception of adjacent landowners changes when the trails are developed. They survey property owners of trails along Florida, Iowa and California in both studies, and find that in general the attitude towards being neighbors to the trail improves with time. They report a negative attitude of the residents when the project starts, due to the fear of an increase in vandalism and a reduction in property values.

¹⁸ When residents already have security problems, and the abandoned track provides an escape route for criminals, there is virtually no support from them in converting that path of the track into a linear park and create (according to their perspective) an even greater lack of privacy in their neighborhood (Monson 1993, Moore 1991, Vogelson 1993, Furuseth 1991).

However, after the trail is completed, residents perceive that they could sell more easily and at an increased value. These studies also survey real estate agents, who in contrast to resident's opinions, believe that there is no significant effect on the prices of properties near the trail.

Vogelsong and Bhullar (1993) study the impact of Columbia's MKT Nature/Fitness Trail on the attitude of property owners. By surveying 38 property owners they conclude that despite some problems associated with loss of privacy, vandalism and littering, fears are overcome with time and residents gain a positive attitude towards the trail.

In a study of the Northern Central Rail Trail in Maryland, PFK consulting (1994), use survey data and among other findings, report that 68.3% of trail users believe that the proximity to the trail would increase the sale price of their property. Additionally they report that 59.9% of users believe that the development of new trails may increase their property value slightly.

2.4 Discussion of Objectives

The literature review provides a range of issues related with the implementation of Rail-Trail projects. Evaluation is mostly based on survey findings and community opinion, but rarely on analysis of objective empirical evidence. This is especially true in analyses of the effects on property values.

Property values are a very important factor in Rail-Trail conversion projects. Not only does the value of a property reflect its characteristics, it also reflects the conditions of the environment surrounding it. If a Rail-Trail conversion project is not able to act as a positive catalyst, has more costs than benefits, and causes the area to deteriorate. Such deterioration will be reflected in declining property values. On the other hand, if evaluations suggest that property values will not decline and might even rise, then conversion projects are very attractive.

There is a considerable gap in literature regarding objective empirical evidence on the impact of Rail-Trail conversion projects on property values. This issue has been analyzed

using opinion surveys, and in most cases results have suggested that landowners believe that the trail improves their property values. However, some studies find no effect. The purpose of this paper is to provide an objective empirical method that contributes to filling that gap.

3. RESEARCH METHODS

Controversy regarding the impact of Rail-Trail conversions has mainly been focused on the possible negative impacts that these projects may have on property values along their path. As mentioned in the previous section, opposition to Rail trail conversion projects is primarily based on the belief that these projects reduce the value of properties along the trail. Therefore, the empirical objective of this study is to design a method to test if the grounds on which controversy is founded are or not solid. How can we test the validity of this belief? In this section I describe a method that can be used, and the trail where it was applied. A description of the Illinois Prairie Path trail (IPP trail) can be found under numeral 3.3 of this section. Evidence for the effects of this trail is provided on Chapter 4.

A standard way of studying the determinants of property values is by estimating hedonic price models via multiple regression analysis (Fischel, 1988; DiPasquale & Wheaton 1996). Hedonic price models describe the price of a property as a function of a set of characteristics. The main idea behind this type of analysis is that each characteristic of a property can be said to contribute some measurable portion of its market price. Thus one can say that for an average property, an additional feature (for example one additional bathroom) will add a fixed dollar amount to the property's value.

In this study the location of a property with respect to the trail is included in the bundle of characteristics explaining its value, and its significance is evaluated. If the estimated coefficient of the location variable is not statistically significant, one can conclude that the trail has no effect on property prices. If significant, the sign of the coefficient will tell us if it affects property prices positively or negatively. This approach for analyzing location effects over property prices has been used previously (Di Pasquale et. al. 1996), however it has not been done, at least to my knowledge, for the case of evaluating Rail-Trails conversion projects.

3.1 Evaluating the Impact of Location on Property Values

The first step in this analysis is to choose the dependent variable of the hedonic price model. This variable must capture the market value of a property. Ideally one would use market sale prices for this purpose. However, obtaining a complete data set with this information has proven to be difficult. Therefore, the assessed land value of properties is often used as a substitute (Fischel, 1988). Assessed values provide explicit information about the potential price of a property and are a matter of public record; it is not the market price, but is likely to be closely related.

Another variable that can be used as a proxy for property prices, and that captures the market value of a property, is the rental price. The use of this variable as a proxy is justified on the grounds of how property prices are determined. The price of a property, and in general the price of any asset, is nothing more than the present value of the rents derived from the use of that asset (Mills, 1977; Mills & Hamilton, 1989). Formally the price of the property (P) is given by:

$$P = \frac{R}{i} = \sum_{n=1}^{\infty} \frac{R}{(1+i)^n} \quad (1)$$

where R is the rent and *i* the interest rate. From equation (1) it is easy to see how, in each moment in time, property prices are proportional to the rent. Higher rents are associated with higher prices, and lower rents with lower prices. As pointed out by Di Pasquale et. al (1996), an advantage of using rents is that these are also determined by the same economic fundamentals and by the same underlying housing production costs that determine market prices of properties. Therefore, the use of rents is valid in the hedonic price analysis model, since it provides accurate approximation to differences across market prices. They are, however, rarely used because of the difficulty in gathering the data, and constructing an appropriate data set.

In this study, both residential assessed land values and residential market rents, are used as proxies in the analysis of the effects of the trail, on property prices. Section 3.2 describes briefly the methods used in each case.

3.2 Using Property Assessed Values and Rental Prices to Evaluate the Impact of an Existing Trail.

Using assessed land values as a proxy of property prices has the enormous advantage of data availability. Unlike rents, this information is not determined by what the market has to offer, but is rather an independent, subjective assessment of market values. Every property has an assessed value, and this information is in the public domain.¹⁹

Once the dependent variable is chosen, the next step is to construct a set of independent variables that explain it. Hedonic price models require a number of variables to explain variations in the dependent variable. It is important to note that these models indicate a relationship of those independent variables with the dependent one, rather than their causality.

A list of possible independent variables could include parcel characteristics such as size, location, land use, etc. In addition, it could also include more specific characteristics such as the number of bedrooms in the property, the number of bathrooms, the availability of extra storage facilities, garage and parking availability, if the property has or not a tennis court, a swimming pool, a fire place, a club house or party room, exercise facilities, an elevator, patios or balconies, a washer and dryer inside the property, furniture, blinds and drapes, air conditioner, if heat is included in the rent, if it is at a walking distance from public transportation, and if cats and dogs are allowed in the property.

Additionally variables that describe the general area within which the property is located such as median household income, median family income, school district quality, crime levels, etc., should be considered.

Since this study is concerned with the effects of proximity to the trail, experienced by residential property values, it is necessary to develop a way to discriminate between properties '*close to*' and '*far away*' from the trail. The location variable captures the

¹⁹ Data employed for this study comes from the Du Page County Development Department, in accordance with public records complying with state open records law. For the purpose of evaluating the results it is to be considered that the accuracy of Tax Assessment information is dependent upon county's annual tax assessment process.

distance of the property from the trail. If property values fluctuate as distance increases then the effects of the trail can be distinguished either as positive, or negative. To define this variable, proximity of the property to the trail by employing a continuous measure was taken into account, but discarded. The reasons for discarding it can be found on the result's section (Chapter 4). As better approach this study considered a discrete variable (dummy variable) taking one (1) as its value when the property is '*close*' to the trail, and zero (0) when its location is '*far away*' in relationship to it.

Furthermore, rather than setting a boundary line between these distance categorizations, the concept of introducing a reasonably wide buffer separating this groups, was considered. This buffer discards the possibility of properties being located adjacent to each other, but categorized as different, which is the problem that a boundary line will create.

Once the data set is completed, it is possible, via multiple regression analysis, to isolate the impact of the proximity of the property to the trail on the residential assessed values, and on the residential market rents, once one has corrected by other possible factors that can influence it.²⁰

Results of two tests, using each, one of these two dependent variables when estimating the hedonic price model described above are reported in the following section (under numerals 4.1 and 4.2).

3.3 Case Selection

Ideally, data for the analysis method described above would be drawn from any number of Rail-Trail conversion projects from across the nation. Since this kind of data collection was beyond the scope of this study, the decision was made to focus solely on one project. Such project would have to meet several criteria. The trail must pass through urban residential areas, and the project must have had a maturation period (of at least 10 years)

²⁰ Specifically one of the dependent variables employed is the assessed land value per acre (the result of dividing the fair cash value of the parcel by the parcel acreage). The other variable is monthly rental prices as of a same time period.

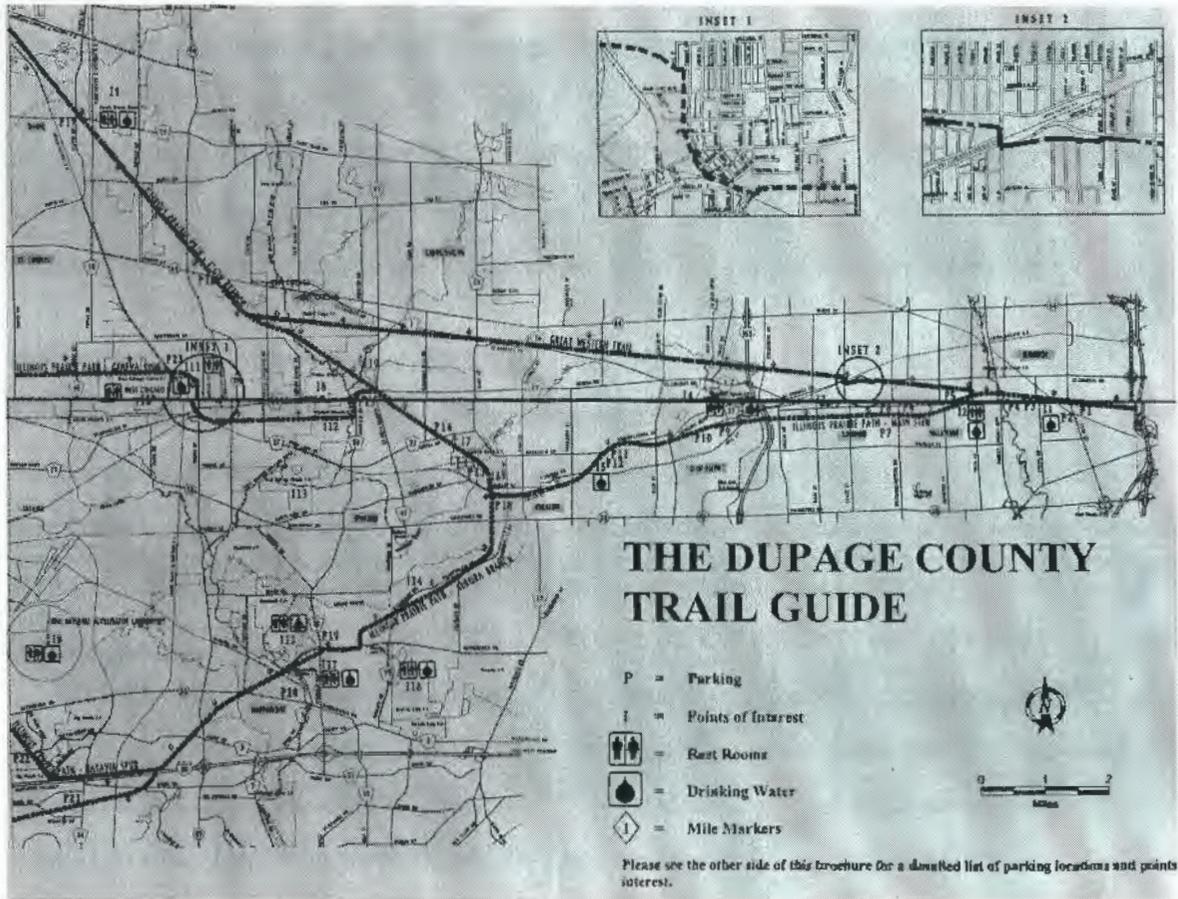
after its implementation. This ensures that, given the time effect, price changes caused by the project, have already been incorporated into rental prices and assessed land values.

According to the ranking presented in USA Snapshots of the bike trail boom (USA Today, December 7, 1998), Illinois is the ninth state with more trails in the United States.²¹ Illinois has 402 bike trails (Tammi & Visgaltis 1998), however not all of these are rail-converted ones. Therefore, after evaluating the history of several of the urban trails in the state, and narrowing the number of possible Rail-Trail converted projects by availability of data and proximity to urban residential areas, the Illinois Prairie Path trail was chosen for this study.

The Illinois Prairie Path constitutes part of the Grand Illinois Trail, which is a set of inter-linked trails from more than 20 different counties around the Chicago area. Particularly, the Illinois Prairie Path is located near the far-western suburbs of Chicago, covering some area of Kane, Du Page and Cook Counties. It is mostly under the management of the Illinois Prairie Path Corporation and the Du Page County Division of Transportation (40 miles of this path are running through Du Page County). Other entities sharing management tasks are: The Illinois Department of Natural Resources (Cook County), The Forest Preserve District, and The Fox Valley Park District (both from Kane County), as well as other numerous adjacent park districts (Palermini, 1996). Figure 1 on the following page is representing most of this trail's path.

²¹ (Tammi & Visgaltis 1998). This newspaper clipping can also be found on a web page maintained by Rails-to Trails Conservancy. The location of this page is at <http://www.railtrails.org/usatdy.html>.

Figure 1: Illinois Prairie Path Trail



Note: This Du Page County Trail Guide has been borrowed from a public brochure distributed by the Division of Transportation of Du page County.

The Illinois Prairie Path is a heavily used multi-use 55-mile trail following the right of way of the defunct Chicago, Aurora and Elgin Railway (CA&E line, often called the 3rd rail). According to Palermini (1996), this 55-mile route is the longest unpaved trail in Northeastern Illinois. Its surface, averaging 10 feet in width, is crushed limestone (limestone screenings pack down after rain or frequent use, and do not wash off easily). It hosts biking, hiking, jogging, in-line skating, equestrian and nature study as some of its main activities among others. By ordinance, motorized vehicles are not permitted. Parking, restrooms and water facilities are available along the path for the general public as noted by Cross (1997). Being almost completely flat, this trail has been rated technically as very easy. It does not have a fee for use (Palermini, 1996).

The following is a brief historical account of the trail. A petition to discontinue passenger service of this line was approved in 1957, and two years later approval to discontinue freight service was also granted. Although the right of way was finally abandoned in 1961,²² the idea of developing a trail was proposed by May Theigaard Watts in a letter to the editor of the Chicago Tribune. This letter was published in September 1963, and her vision for this abandoned rail corridor to be preserved for future public multiple-use received almost immediately quite a response from the public supporting the idea.²³

Several little walks and special field trips were programmed for the public while promoting the idea of the trail at all community levels. Newsletters from the group representing the Prairie Path started to be produced and distributed on 1963. (Up to now, they have been announcing trails activities and reporting achievements.)²⁴ Some of these very early activities took place while local press and radio held coverage of some of the events, in May 1964 and Oct 1965 (to mention few). Only when lease agreements were signed with those who owned the right of way, was it possible to acquire the right to use the right of way by the path's not-for profit organization. The public use of these areas, therefore, was legally accepted. The first of these leases on May 1966 was between Du Page county and the Illinois Prairie Path's corporation, organization formally established in 1965).

National Status (being nationally recognized as a recreation facility) was achieved on June 1971. The Illinois Prairie Path was the first trail in Illinois to receive such designation. In 1988, the Illinois Prairie Path Corporation received the national *Take Pride in America* Award, recognizing their 25-year stewardship of public lands. By this time, several bridges had been constructed to ensure continuity along the trail: Du Page County received the American Institute of Steel Construction *Prize Bridge Competition*

²² According to the relate delivered at the Mill Race Inn, Geneva, Illinois on April 12, 1979, which was presented by Samuel S. and Elizabeth R Holmes (Cross, 1998b).

²³ Ibid.

²⁴ Today, newsletters can be found on-line on a web page maintained by IPP BOD member and Rail-Trail advocate Mike Cross. The location of this page is at <http://www.ipp.org/>

Award of Merit in 1991 for the Jack T. Knuepfer Bridge (a 400-foot-long arch bridge carrying the Geneva Spur).

At present, the latest addition to the path is a 4-mile section on Cook County, opened on September 20, 1998.

4. RESULTS

In this chapter, I describe the results of the analysis outlined in the last chapter. First, I tested if proximity to the Illinois Prairie Path trail (IPP trail) had any effect on assessed land values in residential properties. Second, I tested if proximity to the IPP trail had any effect on residential rents. In each of the following sections I describe the sampling method used, I provide descriptive statistics of the sample, and then I explain the results of the tests used.

4.1 Impact of the IPP trail on Assessed Land Values

4.1.1 Sampling Methods

The sample consists of two sets of residential properties in Du Page County. One set contains 100 parcels within 100 feet of the IPP trail, and the other set contains 87 parcels that are from 1.5 miles to 5 miles away from the IPP trail.²⁵ The first set was constructed using GIS technology, by a query of all parcels in Du Page county that are within 100 feet of the IPP trail. From these 332 parcels all non-residential parcels were dropped. Out of the remaining 217 parcels, 100 were selected randomly (dropping every other according to the corresponding map).

The second set was selected by choosing 100 parcels at random from a digital map of Du Page County.²⁶ Parcels were selected by clicking at random places on the map that were 1.5 to 5 miles away from the IPP trail. An effort was made to distribute these parcels uniformly across the county. Other than that, there was no effort to systematically pick particular parcels. Given the small size of the map, and the great extent of the area (more than 200,000 properties), I believe randomness was achieved. From this set of 100 parcels, 13 were dropped because they were non-residential.

²⁵ The maximum distance in miles is considered based upon Furuseth's (1989) finding of a service ratio for a neighborhood recreational facility, where the distance decay relationship, and impact area for residential properties in relationship with a trail can be considered to be of 5 miles.

²⁶ Again, using GIS technology.

4.1.2 Descriptive Statistics

Descriptive statistics for the entire sample can be found in table 1 (below). The mean land assessed value per acre of the 187 parcels is \$74,364; the least expensive property is valued at \$6,304 and the most expensive one is valued at \$357,551 per acre. The median household income in the census tract where each parcel is located was associated with that parcel. The mean value of this measure of neighborhood quality was \$51,903; the lowest value was \$35,039 and the highest \$110,331. Therefore, the sample contained parcels that varied widely in assessed land value and in the household income representative of their location.

Table 1: Descriptive statistics

Complete Sample					
Variable	Num.Obs	Mean	Std.Dev.	Min.	Max.
Assessed Value	187	74364.0	47952.3	6304.3	357551.0
Median Household Income	187	51903.4	10809.3	35039.0	110331.0
Median Family Income	187	59039.7	11400.0	39941.0	120405.0

Properties Adjacent to the Trail					
Variable	Num.Obs	Mean	Std.Dev.	Min.	Max.
Assessed Value	100	73061.5	35367.6	6666.7	337105.3
Median Household Income	100	49990.1	3543.9	41316.0	52208.0
Median Family Income	100	58218.6	4753.2	46184.0	61750.0

Properties Farther the 1 Mile from the Trail					
Variable	Num.Obs	Mean	Std.Dev.	Min.	Max.
Assessed Value	87	75861.2	59405.2	6304.3	357551.0
Median Household Income	87	54102.7	15135.9	35039.0	110331.0
Median Family Income	87	59982.2	15918.2	39941.0	120405.0

4.1.3 Analysis

Descriptive statistics for each of the sub-samples (close to and far away from the IPP trail) are also given in table 1 (above). These suggest that both assessed land value and median household income are higher in the parcels away from the trail. There is also more variation in these values for parcel away from the IPP trail. A t-test for difference of the two means, however, indicates that the difference in assessed land value is not statistically significant. On the other hand, the median household income in properties

further away from the trail is significantly greater. Results of the t-tests are reported in table 2 (below).

Table 2: Statistical Comparison of Means

Variable	t-statistic ^a	10% Critical Value
Assessed Value	-0.397	1.65
Median Household Income	-2.636	1.65
Median Family Income	-1.056	1.65

^a Degrees of freedom = 185. The null hypothesis of the test is that the mean of both samples are equal.

To confirm that for the average property, location does not affect assessed land values, I performed a multiple regression analysis with assessed land value as the dependent variable, and three independent variables: median household income, a dummy variable indicating if the property is designed for multiple or single family use, and a location variable that took value 1 if located near the IPP trail and 0 if away from it. The results of this analysis are tabulated in the first column of table 3 . As expected, proximity to the IPP trail is not a significant determinant of assessed land value for the average property.

Table 3: Regression Results

Dependent Variable: Assesed Values of Parcel (per Acre)				
Regressors	Overall Regression	25% Quantile	50% Quantile	75% Quantile
Constant	28487.90 *	32353.20 *	31917.70 *	24237.80 *
	<i>1.65</i>	<i>4.13</i>	<i>5.76</i>	<i>3.98</i>
Trail	-4057.20	20449.10 *	8309.95 *	-13487.60 *
	<i>-0.60</i>	<i>6.98</i>	<i>3.54</i>	<i>-6.05</i>
Median Household Income	0.77 *	0.17	0.47	1.15 *
	<i>2.48</i>	<i>0.79</i>	<i>4.92</i>	<i>10.28</i>
Multifamily	39846.98 *	6619.60 *	21828.80 *	48066.75 *
	<i>4.91</i>	<i>1.92</i>	<i>7.82</i>	<i>17.67</i>
Adjusted R ² / Pseudo R ²	0.13	0.11	0.06	0.19
Num. Obs.	187	187	187	187

Notes: t-statistics are reported in *italics* under each coefficient. An * indicates significance at the 10% level. The regressions were also ran using median family income, and results were very similar to those reported.

In addition to the (average) multiple regression described above, I also estimated regressions by quantiles²⁷. These estimations are reported in columns 2 through 4 of table 3. The results of these indicate that parcels that have a low assessed land value (close to the 25% quantile of the sample), that are closer to the trail, have a significantly higher value than those that are further away. At the same time, parcels that have a high assessed land value (near the 75% quantile), that are close to the trail, have a significantly lower assessed land value.

The model underlying the regression analysis explains only a small portion of the variation in assessed land values. As can be seen from table 3 (on the previous page), at most 19% of the variance of the dependent variable has been explained. Clearly, other factors must be included to more fully explain that variance. Further data (other property characteristics such as number of bedrooms in the property, number of bathrooms, etc.) were not available. This analysis suggests that proximity to the IPP trail does not affect the assessed land value of an average property. However, once one discriminated by price levels significant effects can be detected. As properties increase in value, the proximity to the trail becomes a less desirable issue.

4.2 Impact of the IPP trail on Residential Rents

Given that characteristics on the building on the property are available for rental properties, the analysis above was repeated for residential rents.

4.2.1 Sampling Methods

The sample was drawn from a set of 177 properties that were for rent as of January 1999 in Du Page, Kane and Cook counties. These properties were selected by searching real estate office apartment guides and web referral services. There was no effort to systematically pick particular rental properties. All those that had the information required for the analysis (number of bedrooms, bathrooms, etc.) were selected.

²⁷ The quantile regressions are estimated following Koenker & Basset (1978).

A brief description of the location of the properties of the data set with respect to the IPP trail is provided in table 4.

Table 4: Location of Properties Relative to the Trail

Location of Properties	Frequency	Percent
Less than half a mile from trail	18	10%
Between one half and a mile from trail	28	16%
Between one mile and a mile and a half from trail	30	17%
Between one mile and a half and two and a half miles from trail	45	25%
Over two and a half miles from trail	56	32%
Total	177	100

Once again, the sample consisted of two sets of rental properties. The first set contains 46 properties within 1 mile from the IPP trail. The second one contains 51 properties over 2.5 miles away but no farther than 5 miles away from the IPP trail. The maximum distance was considered again, following Furuseth (1989) who states that the service area of a trail is restricted to a 5-mile radius.

4.2.2 Descriptive Statistics

Descriptive statistics for the quantitative variables can be found in table 5. The average rent of the 97 properties is \$790; the least expensive property is rented at \$451 while the most expensive one is rented at \$1,685 per month. As in the previous section, the median household income in the census tract where each property is located was associated to it. The mean value of this variable was \$47,007.54; the lowest value was \$36,649 and the highest \$68,518. As can be seen, the variation in rents for the whole sample is considerable, as well as that in the household income associated to each property.

Table 6 provides descriptive statistics for the qualitative variables in the form of frequencies and percentage of observations per category in each variable. Most of the properties analyzed have 2 or 3 bedrooms (80%) and 1 bathroom (76%). Most of the properties have the following additional features: extra storage facilities, a patio or balcony, heat included, permission to own pets, blinds and drapes, a swimming pool, and are located close to transportation facilities. On the other hand most of them do not enjoy

a tennis court, garage and parking facilities, an elevator, a fireplace, a clubhouse, washer and dryer, exercise facilities, furniture, and air conditioner.

Table 5: Descriptive Statistics

Complete Sample					
Variable	Num. Obs.	Mean	Std.Dev.	Min.	Max.
Rental Price	97	789.77	163.87	451	1685
Median Household Income	97	47007.54	8674.77	36649	68518
Median Family Income	97	54834.1	10545.48	42318	81170

Properties Within 1 Mile of the Trail					
Variable	Num. Obs.	Mean	Std.Dev.	Min.	Max.
Rental Price	46	815.89	189.96	576	1685
Median Household Income	46	45970.78	4301.63	38679	52208
Median Family Income	46	53314.67	4775.85	46827	62417

Properties Farther Than 2 and 1/2 Miles of the Trail					
Variable	Num. Obs.	Mean	Std.Dev.	Min.	Max.
Rental Price	51	756.23	133.76	451	1101
Median Household Income	51	47942.65	11222.79	36649	68518
Median Family Income	51	56204.57	13745.92	42318	81170

4.2.3 Analysis

Table 5 also provides descriptive statistics for each of the sub-samples (close to and far away from the IPP trail). These suggest that rents are higher but slightly more volatile in properties close to the trail. On the other hand the median household income appears to follow the opposite pattern, that is, higher and more volatile away from the IPP trail.

A t-test to compare the average rent of both samples suggests that in fact these differ across samples. On the other hand the median household income is not significantly different in properties close to the IPP trail and in those far away from it. These tests are reported in table 6.

Table 6: Descriptive Statistics of Qualitative Variables

Variable		All Properties		Properties Close to Trail ^a		Properties Far From Trail ^b	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Number of Bedrooms	Studio	8	8.25%	5	10.87%	3	5.88%
	1	40	41.24%	18	39.13%	22	43.14%
	2	40	41.24%	19	41.30%	21	41.18%
	3	9	9.28%	4	8.70%	5	9.80%
Number of Bathrooms	1	74	76.29%	36	78.26%	38	74.51%
	2	23	23.71%	10	21.74%	13	25.49%
Tennis Court	Yes	32	32.99%	13	28.26%	19	37.25%
	No	65	67.01%	33	71.74%	32	62.75%
Extra Storage	Yes	73	75.26%	33	71.74%	40	78.43%
	No	24	24.74%	13	28.26%	11	21.57%
Garage/Parking	Yes	34	35.05%	20	43.48%	14	27.45%
	No	63	64.95%	26	56.52%	37	72.55%
Patio/Balcony	Yes	73	75.26%	29	63.04%	44	86.27%
	No	24	24.74%	17	36.96%	7	13.73%
Elevator	Yes	30	30.93%	16	34.78%	14	27.45%
	No	67	69.07%	30	65.22%	37	72.55%
Fireplace	Yes	19	19.59%	7	15.22%	12	23.53%
	No	78	80.41%	39	84.78%	39	76.47%
Clubhouse	Yes	39	40.21%	18	39.13%	21	41.18%
	No	58	59.79%	28	60.87%	30	58.82%
Washer/Dryer	Yes	22	22.68%	10	21.74%	12	23.53%
	No	75	77.32%	36	78.26%	39	76.47%
Heat Included	Yes	61	62.89%	34	73.91%	27	52.94%
	No	36	37.11%	12	26.09%	24	47.06%
Cats OK	Yes	84	86.60%	38	82.61%	46	90.20%
	No	13	13.40%	8	17.39%	5	9.80%
Dogs OK	Yes	56	57.73%	29	63.04%	27	52.94%
	No	41	42.27%	17	36.96%	24	47.06%
Walk to Transportation	Yes	69	71.13%	38	82.61%	31	60.78%
	No	28	28.87%	8	17.39%	20	39.22%
Exercise Facilities	Yes	34	35.05%	17	36.96%	17	33.33%
	No	63	64.95%	29	63.04%	34	66.67%
Furniture	Yes	13	13.40%	11	23.91%	2	3.92%
	No	84	86.60%	35	76.09%	49	96.08%
Pool	Yes	67	69.07%	28	60.87%	39	76.47%
	No	30	30.93%	18	39.13%	12	23.53%
Blinds/Drapes	Yes	79	81.44%	38	82.61%	41	80.39%
	No	18	18.56%	8	17.39%	10	19.61%
Air Conditioner	Yes	10	10.31%	8	17.39%	2	3.92%
	No	87	89.69%	38	82.61%	49	96.08%

^a Refers to properties within 1 mile of the trail.

^b Refers to properties farther than 2 1/2 miles of the trail.

Table 7: Statistical Comparison of Means

Variable	t-statistic ^a	10% Critical Value
Rental Price	1.802	1.65
Median Household Income	-1.119	1.65
Median Family Income	-1.354	1.65

^a Degrees of freedom = 100. The null hypothesis of the test is that the mean of both samples are equal.

This means that the explanation of the differences across rents must be found in other variables different to the income level of the neighborhood where properties are located.

Table 7 also summarizes descriptive features for the qualitative variables in each of the samples. Except for very few variables, as can be seen, the composition of both data sets is very similar. That is, frequency distributions of the variables appear to follow very similar patterns for the sample of properties near the trail when compared to that of properties away from the trail.

After ruling out significant differences in the characteristics of the properties of each sample, the most likable candidate to explain the difference in rents across samples is the location of the property. To confirm this, I performed a multiple regression analysis similar to that of the previous section. The dependent variable in this case was the rental price of each property and the independent ones were those listed in table 7 and a location variable that took the value of 1 if the property was within 1 mile of the trail and 0 if it was between 2.5 and 5 miles away from the IPP trail. The results of this analysis are tabulated in table 8.²⁸ In order to report only those results that are statistically significant, stepwise regression methods were used to determine a statistically adequate

²⁸ The statistical analysis was also performed using different measures for the proximity variable. A continuous measure was used in which the proximity was defined as the distance in miles from the property to the trail. When using this variable, significant results were not found. This can be the consequence of the fact that such a variable discriminates between properties far from the trail no matter how distant they are from it, and treats them as different. The one-zeros variable considers properties far away as equivalent among each other, independently of how far they are from the trail. Additionally the one-zeros variable was also defined for a broader range of 1½ miles. When doing so results were very similar as those reported on table 8.

set of regressors. The significance level chosen for the stepwise regression was 10%. This means that the regressor was selected if when included was significant at that level.

The first column on Table 8 reports the results of a standard (average) regression. As expected the proximity to the IPP trail is a significant determinant of the rental price of the property. If the property is close to the trail, the rent of the property is in average 50 dollars higher than that of a similar property far away from the IPP trail. As before, quantile regressions are also estimated. The second through fourth columns report the result of the estimation of these.

Results suggest that the proximity to the IPP trail is a relevant determinant of the rent at all levels of rent. The coefficient is significant at all quantiles. However, the value of the coefficient declines as the quantile increases. That is, the higher the rent paid, the lower the impact of the location of the property on the rent. In other words the proximity to the trail is a desirable feature of a property regardless of how much rent is paid for it (this can be deduced from the fact that the coefficient is positive for all quantiles), but it is a much more desirable feature for those who pay lower rents than for those who pay higher ones (this is concluded from the fact that the coefficient is higher for lower quantiles and is lower for higher quantiles).

The model underlying this analysis explains up to 78% of the variation in rents, which is considerably much better than what was explained using assessed land values. This, of course, is the consequence of having a much more generous data set of possible explanatory variables. Summarizing, results suggest that the distance from a trail is an important determinant of the rental price of a property, however this relationship changes slightly across rent levels.

Table 8: Regression Results

Dependent Variable: Rents				
Regressors	Overall Regression	25% Quantile	50% Quantile	75% Quantile
Constant	408.31 <i>10.91</i>	442.04 <i>12.90</i>	494.50 <i>15.43</i>	453.00 <i>17.55</i>
Trail	50.21 <i>2.97</i>	60.03 <i>3.92</i>	48.51 <i>2.84</i>	39.15 <i>2.68</i>
Number of Bedrooms	120.63 <i>8.22</i>	94.20 <i>6.28</i>	104.00 <i>9.94</i>	118.00 <i>10.10</i>
Number of Bathrooms	71.20 <i>2.81</i>	65.00 <i>2.72</i>	89.51 <i>4.60</i>	63.55 <i>3.74</i>
Exercise	78.20 <i>3.50</i>	60.01 <i>2.74</i>	88.09 <i>3.19</i>	91.12 <i>5.09</i>
Washer and Dryer	158.91 <i>5.79</i>	130.40 <i>6.45</i>	114.07 <i>3.78</i>	134.00 <i>7.35</i>
Elevator	47.44 <i>2.41</i>	45.16 <i>2.34</i>		
Cats OK	-48.77 <i>-1.69</i>	-55.00 <i>-1.97</i>	-51.56 <i>-1.86</i>	
Dogs OK	49.70 <i>2.57</i>			25.00 <i>1.68</i>
Patio / Balcony	36.01 <i>1.75</i>			
Fireplace	-45.28 <i>-1.71</i>			
Blinds and Drapes			-56.37 <i>-2.13</i>	
Clubhouse			47.00 <i>1.75</i>	
Extra Storage				36.11 <i>2.10</i>
Pool		24.99 <i>1.65</i>		
Furnished				47.24 <i>1.73</i>
Adjusted R ² / Pseudo R ²	0.78	0.55	0.55	0.6
Num. Obs.	97	97	97	97

Notes: t-statistics are reported in *italics* under each coefficient. All coefficients reported are statistically significant at the 10% significance level. Regressors were selected following stepwise regression techniques. Other variables used but not significant: Median Family Income, Median Household Income, Air Conditioner, Walk to Transportation and Garage / Parking.

5. CONCLUSIONS

This paper examines the impact of Rail-Trail conversion projects on property values using multiple regression techniques. The paper provides empirical evidence for the case of the Illinois Prairie Path trail. The empirical analysis is divided into two parts. The first part uses assessed land values as a proxy to property values, and the second one uses rental prices instead.

Empirical evidence using assessed land values suggests that an average property's value is not affected by its proximity to the trail. However, once the regression analysis is decomposed by quantiles, I find significant relationships between location and values. For lower quantiles the relationship is positive, for higher ones negative. This means that for expensive properties the IPP trail is considered a disamenity, while it is considered a desirable feature for least expensive ones. These results, in any case, must be interpreted with extreme caution, given the low explanatory power of the regressions that results due to the lack of specific data on property characteristics. Unless the number of independent variables can be increased, clearly the main **caveat** from using assessed land values is the shortage of explanatory data.

When using a data set of rental properties the explanatory power of the empirical analysis increases significantly. In such case, results suggest that the proximity to the IPP trail is an important determinant of the rental price. This result is robust, meaning that the findings hold at every quantile.

In summary, this paper suggests that opposition to Rail-Trail conversion, based on claims regarding negative impacts of the conversion project on property values, is probably not justifiable. In this paper it is shown that in the case of the IPP trail, this would be unfounded. The research methods described and used in this paper can be used to study other trails and evaluate the fears that drive opposition claims. Objective empirical results can be used to identify unwanted impacts of a conversion project, and design policies to correct them.

It is necessary to consider that the results reported are subject to limitations. When using rents, the principal **caveat** is that the sample of properties is limited by what the market has to offer at a particular time. If the method proposed here is to be employed in the evaluation of other rail-trail conversion projects it is necessary to consider possible sample size problems and exercise caution when doing the statistical analysis, given that available properties on rent may not be enough to run the required tests.

Further research in this direction should include time series analysis to determine the inter-temporal effect of the conversion project over property values. Unfortunately, due to the lack of complete records of properties offered in the market in previous moments in time, it is difficult to develop this type of analysis. Although newspaper classified ads can provide a partial record of what was offered in the market at a particular period, most of the characteristics of the property are non-existent on the ads. Moreover, given that it is not probable to find the same property on the market from period to period, the time series would not reflect changes over the same set of properties, making it difficult to track down the true causes of price fluctuations.

6. REFERENCES ²⁹

- Anderson Notter Finegold Inc.** 1978. Recycling Historic Railroad Stations: A Citizen's Manual. Washington, D.C: Department of Transportation – United States of America.
- America's.** (undated). America's Vanishing Rail Network. [Web page] Available at: <http://www.railtrails.org/vansh.html>
- Ames, Gregory P.** 1981. Recreational Reuse of Abandoned Railroad Rights-of-Way: A Bibliography and Technical Resource Guide for Planners. *Council of Planning Librarians*. No.66
- Barnett, Jonathan.** 1995. The Fractured Metropolis: Improving the New City, Restoring the Old City, Reshaping the Region. New York: Harper Collins.
- Blair, John S. & Barry S. Tindall.** 1977. Effective Utilization of Abandoned Railroad Rights-of-Way for Park/Recreation Purposes - Potential Problems and Solutions. Ed. By Patricia J. Brincr. Arlington, VA: National Recreation and Park Association.
- Booth, Wayne C., Gregory G. Colomb, & Joseph M. Williams.** 1995. The Craft of Research. Chicago & London: The University of Chicago Press.
- Chu, Showwei.** Aug 1996. A Ride on the Trails. *Maclean's Journal*. v.109, Aug 19 '96, p.46-7
- Cross, Mike.** (1997, Jun 5). The Illinois Prairie Path. [Web page] Available at: <http://www.ipp.org/ipp-museum.html>
- Cross, Mike.** (1998a, May 8). Grand Illinois Trail. [Web page] Available at: <http://www.ipp.org/g-i-t.html>
- Cross, Mike.** (1998b, Jun 16). Illinois Prairie Path: Trials and Triumphs. [Web page] Available at: <http://www.ipp.org/ipp-ltr.html>
- Cross, Mike.** (1999, Jan 4). Welcome to the Illinois Prairie Path Homepage [Web page] Available at: <http://www.ipp.org/>
- Di Pasquale, Denise & William C. Wheaton.** 1996. Urban Economics and Real estate Markets. New Jersey: Prentice-Hall (A division of Simon & Schuster).
- De Blasio, Don.** (1984, May 22). Urbana council votes against selling land parcel. News Gazette (Champaign-Urbana),
- Fischel, William A.** 1988. (Draft of November 22) Do growth Controls Matter? A Review of Empirical Evidence on the Effectiveness and Efficiency of Local Government Land Use Regulation. Cambridge, MA: Lincoln Institute of Land Policy.
- Furuseth, Owen J. & Robert E. Altman.** 1991. Who's on the Greenway: Socioeconomic, Demographic, and Locational Characteristics of Greenway Users. *Environmental Management*. v.15, No 3, p.329-336. Springer-Verlag New York Inc.

²⁹ All references were listed following guidelines for compiling an APA Style References List, according to Troyka (1996, p. 609-625).

- Gehl, Jan.** 1987. *Life Between Buildings: Using Public Space.* (Translated by Jo Koch). New York: Van Nostrand Reinhold.
- Gittings, Gary L. Darren J. Torbic & Leonard A. Zangwill.** 1996. Planning and Designing Rail-Trails on Abandoned Rail Lines [Web page with the whole document, under the on-line *Road Management & Engineering Journal*, maintained by TransSafety, Inc.] Available at: <http://www.usroads.com/journals/rej/9707/re970702.htm>
- Illinois Prairie Path.** [Map]. <Trail Map Brochure>. Northern Illinois University, Department of Geography. Laboratory for Cartography & Spatial analysis.
- Jacobs, Jane.** 1961. *The Death and Life of Great American Cities.* New York: Vintage Books. A division of Random House, Inc.
- Jenish, D'arcy.** Aug 1996. Old Train Lines Offer New Possibilities. *Maclean's Journal.* v.109, Aug 19 '96, p.46-47.
- Kahn, Fritz R.** Fall 1993. Condemnation – An Alternative Means for Railroad Line Acquisitions. *Transportation Journal.* v.33, Fall '93, p.14-20.
- Kaplan, Rachel, Stephen Kaplan & Terry Brown.** 1989. Environmental Preference: A Comparison of Four Domains of Predictors. *Environment and Behavior.* v.21, No.5, Sept 1989. Sage Publications Inc.
- Kidney, Walter C.** 1976. *Working Places: The adaptive use of industrial Buildings.* Pittsburgh, Pennsylvania: Ober Park Associates, Inc.
- Knaap, Gerrit.** 1998. The Determinants of Residential Property Values: Implications for Metropolitan Planning. *Journal of Planning Literature.* v.12, No.3, February 1998. Sage Publications Inc.
- Koenker, R. & G. Basset.** 1978. Regression Quantiles. *Econometrica.* 46, p.33-50.
- Lilja, Sarah.** 1990. Adopt-A-Park program results in active community participation. *Illinois Parks and Recreation magazine.* Sept/Oct 1990, p.15-16.
- Locke, Lawrence F., Waneen Wyrick Spirduso, & Stephen J. Silverman.** 1993. *Proposals that Work: A Guide for planning Dissertations and Grant Proposals.* Third edition. California: Sage Publications.
- Looking at.** 1994. Looking at Reviving Line. *ENR Journal.* v.233, Oct 24'94. p. 20.
- Mills, Edwin S.** 1980. *Urban Economics: Second Edition.* Glenview, Illinois: Scott, Foresman & Company.
- Mills, Edwin S. & Bruce W Hamilton.** 1989. *Urban Economics: Fourth Edition.* Glenview, Illinois: Scott, Foresman & Company.
- Monson, Mike.** 1988. Effort under way to save railroad. *News Gazette* (Champaign-Urbana) Jan 3, 1988.
- Monson, Mike.** 1993. Residents want the right of way: Recreational trail in Urbana looks like a hard sell. *News Gazette* (Champaign-Urbana) Feb 14, 1993.

- Moore, Roger, & Graefe, Alan R.** 1993. Living Adjacent to Rail-Trails: Changes in Landowners' experiences and Attitudes. (From Dawson, Chad p. Comp.1996. Proceedings of the 1993 Northeastern Recreation Research Symposium: 1993 April 18-20; Saratoga Springs, NY. Gen.Tech. Rep. NE-185. Randor, PA: U.S. Department of Agriculture, Forest Service, NortheasternForest Experiment Station).
- Moore, Roger, Alan R. Graffe, Richard, Gitelson, & Beth Porter.** 1992. The Impacts of Rail-Trails: A Study of User and Property Owners from Three Trails. National Park Service and Penn State University.
- New Rock.** (1979, April 24). New Rock Island Trail Bill Attacked. Journal Star (Peoria), Sec. A, p.12.
- Orland, Brian, Joanne Vining, & Angela Ebreo.** 1992. The Effect of Street Trees on Perceived Values of Residential Property. *Environment and Behavior*. v.24, No.3, May 1992. Sage Publications.
- Palermi, Don.** (1996, June 4). Illinois Prairic Path. [Web page] Available at: <http://members.aol.com/turfinfo/prairie.html>
- Patten, Robert S., Amy Derry, Hal Hiemstra & Marianne Fowler .** 1994. ISTEAs and TRAILS: Mergin Transportation Needs and Recreation Values [Web page with the whole document, under the on-line National Transportation Library, maintained by the Bureau of Transportation Statistics] Available at: <http://www.bts.gov/smart/cat/mtn.html>
- PKF Consulting.** 1994. Analysis of Economic Impacts of the Northern Central Rail Trail. [Web page with the whole document, under the on-line National Transportation Library. Maintained by the Bureau of Transportation Statistics] Available at: <http://www.bts.gov/smart/cat/430.html>
- Rail-Trail.** (undated). Rail-Trail group emphasizes importance of ISTEAs to bike safety. [Web page] Available at: <http://www.railtrails.org/51497.html>
- Ryan, John.** 1984. Park sought for abandoned rail parcel. News Gazette (Champaign-Urbana) May 15, 1984.
- Secrets of.** 1993. Secrets of Successful Rail-Trails: An Acquisition and Organizing Manual for Converting Rails into Trails. [Web page with the whole document, maintained by Rails to Trails Conservancy] Available at: <http://www.railtrails.org/sec-cov.html> Rails to Trails Conservancy in cooperation with National Park Service.
- Schuster, Eric.** 1980. Railroad track to be removed in Urbana. News Gazette (Champaign-Urbana) June 26, 1980.
- (Seattle) Economic Benefits of Preserving Old Buildings Conference.** 1975. Economic Benefits of Preserving old Buildings: Papers from the economic benefits of preserving old buildings conference sponsored by the National Trust for Historic Preservation, Seattle, Wash., July 31-August 2, 1975. Washington: Preservation Press, National Trust for Historic Preservation.

- Shulman, Seth.** 1996. Trends: Rails to Trails. *Journal of Technology Review*. v.99, Oct '96, p. 16-17.
- Tracy, Tammy & Hugh Morris.** 1998. Rails-Trails and Safe Communities: The Experience on 372 Trails. [Web page with the whole document, maintained by Rails to Trails Conservancy] Available at: <http://www.railtrails.org/content.html> Rails to Trails Conservancy in cooperation with National Park Service.
- Teaford, Jon C.** 1990. *The Rough Road to Renaissance: Urban Revitalization in America, 1940-1985*. Baltimore and London: The Johns Hopkins University Press.
- Three-way.** 1994. Three-Way Trade Saves Historic Michigan Bridges. *Journal of Civil Engineering*. v.64, Nov '94, p. 22 & 24.
- Troyka, Lynn Quitman.** 1996. *Simon & Schuster Handbook for Writers/Lynn Quitman Troyka*. New Jersey: Simon and Schuster.
- Vandalism.** (1981, September 4). Vandalism along Rock Island Trail Described as Adult Temper Tantrum. *Journal Star* (Peoria), Sec. A, p.6.
- Vogelsohn, Hans & Hardeep Bhullar.** 1993. Impact of Columbia's MKT Nature/Fitness Trail on Attitudes of Adjoining Property Owners Toward the Trail. (From Dawson, Chad p. Comp.1996. Proceedings of the 1995 Northeastern Recreation Research Symposium; 1995 April 9-11; Saratoga Springs, NY. Gen. Tech. Rep. NE-218. Randor, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station).
- Wark, Tammi & Gary Visgaltis.** (1998, December 7) USA Snapshots: Bike trail boom <graph>. *USA Today*. [Web page with article clipping maintained by Rails-to Trails Conservancy]. Available at: <http://www.railtrails.org/usatdy.html>
- What is.** (undated). What is a Rail-Trail? [Web page] Available at: <http://www.railtrails.org/whtrl.html>
- Welty, Gus.** Oct 1993. Protecting public safety or just playing politics? *Journal of Railway Age*. v.194, Oct '93, p.9.